

## EDUCATION

### • Shanghai Jiao Tong University

Shanghai, China

*Bachelor of Engineering, Electronic Information (IEEE pilot class)*

*Sept 2021 - Current*

▶ **Overall GPA:** 92.66/100.00, 4.04/4.30, (Rank 6/129)

▶ **Selected Courses:**

📖 **Computer Science:** Design and Analysis of Algorithms (A+), Principles and methods of program design (A+), Programming Practice (A+), Computer Network (A+)

📖 **Mathematics:** Mathematical Analysis (A+), Linear and Convex Optimization (A+), Information Theory (A+), Complex Analysis (A+), Probability Statistics (A+)

▶ **Additional Academic Pursuit:** Engaged in a dual degree program in Mathematics and Applied Mathematics. Coursework includes: Complex Analysis, Abstract Algebra, Linear Algebra II

## PUBLICATIONS

### • Defining and Extracting Generalizable Interaction Primitives from DNNs

(📄 Under Review)

*Lu Chen, Siyu Lou, **Benhao Huang**, Quanshi Zhang*

The International Conference on Learning Representations (ICLR 2024)

## EXPERIENCE

### • SJTU-XAI-Lab

Shanghai, China

*Undergraduate researcher, supervised by Prof. Quanshi Zhang.*

*Feb 2023 - Current*

☰ Artificial Intelligence Interpretability

▶ **DNN Interactions Extraction Project**

- Given different DNNs trained for the same task, developed a method to extract their shared interactions.
- By conducting contrast experiments, we showed that the extracted interactions can better reflect common knowledge shared by different DNNs.
- I helped design the algorithm that balanced the generalization ability and sparsity of model interactions.

## PROJECTS

### • Chinese Slot Language Understanding

Shanghai, China

*CS3602 Natural Language Processing*

*Dec 2023*

- Developed a BERT-based pipeline for Chinese slot understanding.
- Incorporated Lexicon information into the BERT backbone and achieved an improved result (from 77.99% to 79.44% in accuracy) on the given noisy dataset. 🌐 [GitHub](#) 📄 [Report](#)

### • AAPMT: AGI Assessment Through Prompt and Metric Transformer.

Shanghai, China

*CS3324 Digital Image Processing*

*Dec 2023*

- Developed a interrelationship-based AGI metrics evaluation system allowing for the simultaneous evaluation of multiple AGI metrics.
- Designed and implemented "Metric Transformer", where attention mechanism is applied to calculate each of metric jointly. 🌐 [GitHub](#) 📄 [Report](#)

### • TranBlend: An Experimental Fusion of Textual Input in Saliency Prediction Models

Shanghai, China

*CS3324 Digital Image Processing*

*Dec 2023*

- Developed a model to simulate the text descriptions' influence on human's attention on images reflecting by saliency maps.
- Blended image features from ViT and text features from BERT using cross-attention to enhance the performance of TransalNet. 🌐 [GitHub](#) 📄 [Report](#)

### • Adaptive Huffman Coding: Analysis and Applications

Shanghai, China

*ICE2601 Information Theory Course Project*

*May 2023*

- Further enhanced the incremental Huffman strategy by adaptive Huffman coding to train Continuous Bag of Words (CBOW) model faster and better. 🌐 [GitHub](#) 📄 [Report](#) 📄 [Slides](#)

### • Shanghai Jiao Tong University Classroom Information Website

Shanghai, China

*ICE2604 Introduction to Software Engineering Course Project*

*Dec 2022*

- Developed a website to help students find comfortable study spaces at SJTU.
  - Used Vue2 as the frontend framework, Elasticsearch and Logstash as the search engine, ECharts for data visualization. [🔗 GitHub](#) [📄 Demo](#)
- **SNAKE Game: Pixel** Shanghai, China  
*CS1605 Programming and Practice Course Project* *July 2022*
    - Designed a SNAKE Game using C++ `pdcourses.lib`.
    - Implemented some interesting game props such as "Rewarding Time" and "Freezing Speed" as well as AI Snake mode. [🔗 GitHub](#) [📄 Slides](#) [📄 Demo](#)

## HONORS AND AWARDS

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- Rui Yuan-Hong Shan scholarship (Rank 3/129) *2023*
- Academic Excellence Scholarship of SJTU (top 10%) *2022, 2023*
- Shao Qiu scholarship (Rank 5/129) *2022*
- Mathematical Contest In Modeling (Meritorious Winner) *2022*

## MISCELLANEOUS

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- **Programming**
  - Proficient: Python (PyTorch, NumPy, Manim, etc.), C/C++,  $\text{\LaTeX}$
  - Familiar: MATLAB, HTML/CSS, JavaScript, Vue, Linux, Shell, Verilog
- **Service**
  - Member of the Outreach Department, SJTU Spark Program *Oct 2021 - Sept 2022*
  - Member of Academic Department, SJTU Student Backbone Training Program *Feb 2023 - Sept 2023*
  - Student Mentor of CS2601 Convex Optimization, SJTU *Oct 2023 - Feb 2024*
  - Student Mentor of CS2612 Programming Languages and Compilers, SJTU *Oct 2023 - Feb 2024*